



Continuent™ Tungsten Enterprise Solutions

Robust Solutions for
Continuous Data Availability and
Performance Scaling

Open Source vs. Enterprise Solutions
White Paper

June 18, 2009

Enterprise Continuous Data Availability

Continuous data availability means having your data available when and where you need with consistently fast response times. This is the key requirement for databases operating in today's 24/7 environments.

Swift changes in database technology and data processing as a whole have made ensuring continuous data availability quite challenging. Large data volumes, a high number of users, and nonstop operation raise the bar for application developers as well as database administrators. The emergence of disruptive but highly economical open source technologies is both an opportunity as well as another potential headache. There is a universal need to cut costs and process data more efficiently.

Continuent Tungsten harnesses the power of advanced open source and commercial technologies to deliver economical and efficient continuous data availability for enterprises. Tungsten solutions are based on the Tungsten Suite, a unique collection of solutions for database scale-out. All solutions include support delivered by database experts.

Tungsten Enterprise solutions and services are available from Continuent, a Continuous Data Availability Company.

Our website is www.continuent.com, and you may download an evaluation version of Tungsten Enterprise at www.continuent.com/software.

Tungsten Open Source components are available at the Continuent Community web site www.continuent.com/community.

Open Source vs. Enterprise Solutions

Tungsten solves enterprise data availability and performance scalability problems

Tungsten solutions integrate scale-out technologies with open source and low cost commercial databases to provide drop-in answers for the big data availability problems that keep IT departments awake at night.

You may choose to take advantage of our open source components, build and support your setup completely by yourself, or you may opt to rely on Continuent's integrated, tested, documented and fully supported **Tungsten Easy HA, Tungsten Easy HA Plus, Tungsten Easy Scale** and **Tungsten Enterprise** solutions. The complete feature and functionality summary can be found at the end of this document.

When you make your decision between Continuent's open source and commercially supported solutions, please consider these questions first:

- Are you planning to run Tungsten in a mission critical or business critical environment?
- Do you want to build and integrate everything yourself?
- Where do you turn for help?
- Would it be better for you to invest your time, money and effort on important issues for your own business?

- How can you achieve maximum ROI?

Success is not about cost of technology—it's making sensible choices about the problems you really need to solve, fixing them economically, and ensuring they stay fixed over the long term without a lot of maintenance effort.

Tungsten Enterprise solutions help users solve data availability and performance problems with easy and intuitive management so that complex operations like failover are reduced to a single command. Our solutions minimize or entirely eliminate application changes and are simple to deploy.

Integrated builds

One build. All components. Our integrated builds include all Tungsten components in a single download.

Users can get individual features from open source. For the most part, they are already there. However, the integration is critical and actually far more difficult than it sounds. For example, we provide integration that ensures the following:

- Replicators and monitors are always paired so that you get accurate information about the replica state.
- Routers and connectors are correctly paired so that they can process this information.
- Additional pieces to ensure networking in a variety of environments are available and correctly running.

You can do this all with open source now. However, you would have to download at least seven individual components, ensure they are all at compatible versions, and set them up together. This is simply not practical or efficient for large-scale use.

Tungsten consists of many individual pieces -- the fact that we integrate them properly and thoroughly test them is probably the single biggest benefit of the commercial build.

Commercial Extensions

Extensions to improve management and security, replicate from commercial databases, and add other features required for enterprise use.

The main commercial extensions at this time are the advanced management capabilities (Tungsten Manager) and Oracle replication.

For example, Tungsten Manager offers you automatic failover capability, and we adding other new capabilities rapidly. Also, the security features of the Manager are very important. Using the open source components, there is no authentication unless you do very detailed configuration that most people won't care to do.

Continuent Tungsten Enterprise has been designed to replicate to/from all Editions of Oracle, including the lower cost editions of Standard Edition, Standard Edition One, and Express. No longer is the user forced to pay the high license fees of Oracle Enterprise Edition, unless their application requires it.

Auto Configuration

Auto configuration procedures for local and cloud environments.

Tungsten Enterprise has an automatic install procedure that works for Linux and for other Unix systems.

This procedure makes configuring and starting services a matter of answering a few simple questions. Open source configuration takes hours or days unless you are an expert; it's also quite error prone.

Even Continuent's core developers can't set up all components manually in less than 30 minutes -- and we wrote the software! We wrote the auto-configuration procedure to solve this problem for ourselves, not just for our commercial users.

Documentation

Tungsten Open source products are documented through the Wiki at SourceForge.net.

We release a full manual for the open source Tungsten Replicator, but it does not contain all the information of the commercial version (Oracle support-related issues have been omitted for example).

Tungsten Enterprise commercial documentation is far more comprehensive. It currently consists of the following manuals:

- Tungsten Enterprise Architecture Guide
- Tungsten Enterprise Installation & Configuration Guide
- Tungsten Enterprise Replicator Guide
- Tungsten Enterprise Connector Guide
- Tungsten Enterprise SQL Router Guide

Regular Updates and Upgrades

Regular releases and patches, extended support options for guaranteed turn-around on fixes.

We release open source software at our convenience and do not guarantee that versions are compatible across components.

We naturally drive for the compatibility but it's not the main focus of open source, which is provided as individual components, not as a complete solution.

Tungsten Enterprise commercial releases combine all components in a single, fully tested solution.

For open source, we fix bugs based on our convenience. Bug fixes for Tungsten Enterprise customers will always get the highest priority. This is again an important value addition.

Note: *We do value our open source users. We value even more all the QA effort they do and bugs they find. We do make the best effort of trying to react as quickly as possible to open source bug reports, and perhaps most of all, we value all of the fixes we get from our open source users! Keep them coming!*

Commercial Support from Database Experts

Enterprise-level
24/7 support and direct
access to key
engineers.

Replication is complex and you can run into difficult problems. People who understand our code and thoroughly know their databases could consider operating without support. The only question is if this will be the best use of your time, money and effort.

Everybody is going to have questions sooner or later. It's important to get the right answers or risk having systems that are down, lost data, or other catastrophic events.

Technical support should be a major concern for companies who value their data, need constant uptime, or have to react efficiently to different levels of loads on their systems.

Continuent, Inc. offers commercial support and services that cover all Tungsten technologies. Our offerings preserve the openness and flexibility of the open source approach but add the security and convenience of knowing that experts are close at hand in case you run into difficulties.

Enterprise support includes not only phone and email contact but also options for regular meetings with Continuent engineering staff, guaranteed turnaround times for solutions, and custom consulting packages.

Summary And More Information

Tungsten commercial solutions help users harness innovative open source technologies to provide continuous data availability that meets the needs of enterprises from small to large. Tungsten offers features that are critical to ensuring that databases operate efficiently and economically under a wide range of conditions.

Tungsten Enterprise solutions and services are available from Continuent, a Continuous Data Availability Company.

Our website is www.continuent.com, and you may download an evaluation version of Tungsten Enterprise at www.continuent.com/software.

Tungsten Open Source components are available at the Continuent Community web site www.continuent.com/community.

Exhibit A: Tungsten Product Features

	Easy HA	Easy HA Plus	Easy Scale	Enterprise	Site License
Number of Servers	1+1	1+1	1+N	1+N	N*(1+N)
High Availability					
1+1 database replication	●	●	●	●	●
Seamless slave promotion and master failover	●	●	●	●	●
Zero data-loss with planned failover	●	●	●	●	●
Master recovery and fallback	●	●	●	●	●
Fail-safe data application on slave	●	●	●	●	●
Automated consistency checks	●	●	●	●	●
Integrated backup/restore	●	●	●	●	●
Simple management	●	●	●	●	●
Admin security	●	●	●	●	●
Advanced High Availability					
Zero data-loss with emergency failover		●		●	●
Recovery from admin data deletion		●		●	●
Automated failover		●		●	●
Zero downtime upgrade		●		●	●
Database Performance Scaling					
1+N database replication			●	●	●
Load balancing of reads			●	●	●
Automatic detection of new slaves			●	●	●
Automatic tracking of slave latency			●	●	●
Enterprise Clustering and Replication					
High performance parallel replication				●	●
Data partitioning/sharding support				●	●
Session consistency model load balancing				●	●
Scheduled backups				●	●
Bi-directional replication with conflict resolution				●	●
Secure transport and data encryption				●	●
Cloud Operation					
RightScale scripts and server templates	●	●	●	●	●
Amazon EC2 enabled	●	●	●	●	●
GoGrid enabled	●	●	●	●	●
Rackspace/Mosso enabled	●	●	●	●	●
Data Integration					
Extend to new data sources	●	●	●	●	●
Hooks for data transformation	●	●	●	●	●
Replication to/from applications				●	●
Replication to/from message bus software				●	●
Replication to any JDBC-enabled database				●	●
Documentation, Deployment & Support					
Professional documentation	●	●	●	●	●
Quick installation and certified builds	●	●	●	●	●
8x5 email support	●	●	●	●	●
24x7 enterprise support		●		●	●
Custom bug fixes				●	●
Guaranteed response time				●	●